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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

HAN, YOUNGHUIE JESSICA

ART UNIT PAPER NUMBER

2838

DATE MAILED: 10/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/612,299

Applicant(s)

DINH ET AL.

Examiner

Y. J. Han

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>9/1/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. In light of the applicant's argument, the last restriction requirement is hereby withdrawn.

Claim Objections

2. Claims 1-6, 8-10, and 15-21 are objected to because of the following informalities:

In claim 1, the phrase "a transformer circuit including an input port and an autotransformer coupled to the input port" renders the claims indefinite because it reads as if the autotransformer is another element (not being part of the transformer circuit) attached to the transformer circuit.

In claim 3, the clause "a port other than the input port" is unclear because figures 2 and 3 clearly show diode connected between a coil and the input port 108.

In claim 8, it is unclear how "the input port is connected in series with a switch and the autotransformer" and "a diode is connected in parallel with the switch and the autotransformer." Drawings appear to show that switches and diode are integral part of the autotransformer. It is difficult to gather which portion represents the autotransformer so that the claimed input port and the diode configuration is clearly understood.

In claim 15, "the filter" lacks proper antecedent basis.

In claim 21, it is unclear which converter is being implied by "connecting a converter to the output signal." Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-11 and 15-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Glennon (5,008,801).

Glennon discloses a converter comprising: a transformer circuit including an input port (51a-51c) and an autotransformer (33) coupled to the input port, the input port to receive an input signal; a filter (34) coupled to the transformer circuit, the filter to generate an output signal at an output port (52a-52c); and a controller (60) coupled to the transformer circuit and the filter, the controller to receive the output signal from the filter and to provide one or more control signals to the transformer circuit to control the output signal (see fig. 3); wherein the autotransformer comprises three coils (80a, 80b, 80c); wherein a diode (any of D1-D6) is connected between one of the three coils and a port other than the input port; wherein the filter (34) includes an inductor (inductor and capacitor are inherent in low-pass filter) coupled directly to the autotransformer; wherein the filter comprises a low-pass filter (reads on 34); wherein the controller comprises a synchronous buck controller (60); wherein the input signal has an input signal value and the output signal has an output signal value and the output signal value is less than the input signal value (the winding portions 86a-86c are sized for approximately one-third of the output power rating). Further, various combinations of switches S1-S12 could be drawn to show an input port

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connected in series with any switch and an autotransformer, and a diode (D1-D6) connected in parallel with the switch and the autotransformer. The switches S1-S12 comprise insulated gate devices, such as IGBTs, MCTs or power FETs.

Glennon further discloses a method comprising: receiving a first input signal (51a-51c) at a transformer circuit including a first coil (any one 80a-80c or 82a-82c) and a second coil (any one 80a-80c or 82a-82c); activating a first switch (any of S1-S12) to serially connect the first coil to the second coil; activating a second switch (any of S1-S12) to connect the second coil to a second input signal (any of 51a-51c); deactivating the first switch and the second switch; and activating a third switch (any of S1-S12) to connect the filter (34) input signal to the second input signal; wherein receiving the first input signal at the transformer circuit including a first coil and a second coil comprises receiving a substantially direct current voltage signal from a power source (figures 2 and 3); wherein activating the first switch to serially connect the first coil to the second coil comprises activating the first switch from a first control signal provided by a controller (60); wherein activating the second switch to connect the second coil to the second signal comprises activating the second switch from the first control signal; wherein deactivating the first switch and the second switch comprises deactivating the first switch before deactivating the second switch; wherein activating the third switch to connect the third switch to the second control signal comprises activating the third switch after deactivating the first switch and the second switch; further comprising connecting the filter input signal to a filter having an output signal (52a-52c) and connecting a converter (22) to the output signal.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Glennon (5,008,801).

Glennon discloses the invention substantially as claimed but does not disclose an input signal value of forty-eight volts and the output signal value of about six-tenths of a volt. It would have been obvious to one having ordinary skill in the art at the time the invention was made to set input signal value at forty-eight volts and the output signal value at about six-tenths of a volt, since it has been held that where general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. Moreover, it would have been an obvious matter of design choice to set input signal value and output signal value at certain levels, since applicant has not disclosed that such

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input and output values solve any stated problem or is for any particular purpose and it appears that the invention would perform equally well with any other input and output values.

8. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glennon in view of Cross (5,795,595).

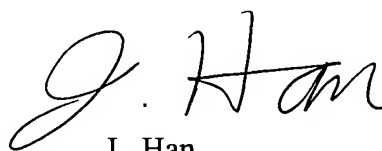
Glennon discloses the invention substantially as claimed but does not disclose a second converter operated 180 degrees out of phase from the converter. Cross, however, clearly discloses two power converters coupled in parallel and are operated 180 degrees out of phase with one another. Therefore, it would have been obvious to one having ordinary skill in the art to employ second converter in Glennon, as taught by Cross, to obtain the claimed invention for the purpose of "highly efficient and compact, and is suitable for use under high power, high frequency conditions."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Y. J. Han whose telephone number is 571-272-2078. The examiner can normally be reached on Mon-Fri 5:30am-2:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry can be reached on 571-272-2084. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "J. Han". The signature is fluid and cursive, with the first letter "J" being large and stylized, and the last name "Han" written in a more standard cursive script.

J. Han
Primary Examiner
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